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ABSTRACT

This survey was conducted to determine the frequency of participation in high-risk recreation activities in the Northern Rocky Mountains and to identify how wildland managers perceive the presence of these sports and the problems associated with them. Managers rated perceived risk, management difficulty, and appropriateness given management objectives and supplied the use levels for each of 23 activities covering a wide range of sports. The result of the survey are presented in tabular form, and the manager's perceptions are discussed and analyzed. (JD)

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LAND MANAGERS' PERCEPTIONS OF RISK
RECREATION IN THE NORTHERN ROCKIES

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Montana.

The research I'm reporting today is the first phase of a three-year program of research on risk recreation being conducted at the School of Forestry, University of Montana. Although they're not here, I'd like to thank Joel Meier and Steve McCool for their comments, advice, and general aid and abettance.

The increasing popularity of participation in risk recreation activities has been well documented. While several researchers have looked at the risk recreation phenomenon from the viewpoints of participants, land managers' perceptions of and reactions to risk recreation have been little-studied (but see Dunn & Gulbis, 1976).

The present survey attempted to determine the frequency of participation in high-risk recreation activities in the Northern Rocky Mountains, and to identify how wildland managers perceive the presence of these sports and the problems associated with them. The sample consisted of all U.S. Forest Service district rangers, National Park Service superintendents, and Bureau of Land Management area or district managers in Montana, Idaho and Wyoming. Of the 160 questionnaires mailed, 123 were returned and 112 useable, for a response rate of 70 percent.

But before presenting our findings, I'd like to talk briefly about what we mean by risk recreation. When combined with recreation, the term "risk" can take on many meanings; in our study, risk was defined as physical danger to participants.

It is difficult to draw up a list of activities and label them "risk recreation" because individuals differ in their appraisal of risk or hazard. One may distinguish between objective risk, calculated from accident reports

(injuries per 1,000 hours, etc.), and subjective risk, or how a person perceives the risk in an activity. Although objective risk is of some interest, subjective risk plays a more central role in determining individual responses to threat or hazard. The question of how to distinguish high-risk from low-risk activities was passed on to our respondents. By rating their perceptions of the risk inherent in 23 recreation activities, they developed a hierarchy of risk recreation which then became our standard for further analyses.

Methods

Using five-point scales, the managers rated 1) perceived risk, 2) management difficulty, 3) appropriateness given management objectives and supplied the use levels, for each of 23 activities. A wide range of sports was included on the questionnaire to allow comparisons between high and low risk activities, and to avoid possible response biases. When an activity was rated as risky or difficult to manage, the managers indicated why, and also listed any management steps either proposed or enacted to reduce the risk to participants. They also rated a list of potential problems in recreation management, discussed search and rescue/evacuation issues, and supplied demographic information.

Results

The 23 activities and their perceived risk, are shown in Table 1. Hang gliding, skydiving, rock climbing, kayaking, and ski mountaineerings were all viewed as quite hazardous, followed by caving, canoeing, snowmobiling, dirt biking, water skiing, and downhill skiing. Probably not a surprising hierarchy.

Insert Table 1

about here

Rating of risk was unrelated to the managers' age, education, or years of experience. This may have been due to the homogeneity of our sample, which would have minimized differences based on demographic variables. It did seem possible, however, that evaluation of risk could be related to the use level of an activity. This was the case among many high-risk sports; risk was rated as higher by those managers of areas experiencing higher use levels. Low-risk activities, on the other hand, received uniform ratings of risk across all use levels. Perhaps increased familiarity with some activities (and the participants) leads to a higher evaluation of risk.

Another difference between high and low risk activities turned up when we looked at the reasons why an activity was rated as risky. The managers believed Terrain Hazards (a category containing rugged terrain, rough or fast water, turbulent currents, hidden or buried obstacles, avalanches, and the like) to be the factor most often generally contributing to risk. Among high perceived risk activities, Human Error (getting lost, carelessness, recklessness, speeding, overconfidence, and disregard for safety) was seldom mentioned as a factor contributing to risk. Among low perceived risk activities, however, Human Error was listed frequently as the reason accounting for the risk. Fifty percent of the time, for example, this was cited as contributing to the risk in hunting.

Why? The managers may assume that participants in high-risk pursuits were well-qualified to participate, and that any risk stemmed from non-human or uncontrollable hazards such as terrain or weather. If so, the managers

discounted the human element, and an activity was perceived as risky regardless of participant.

We also looked to see if the managers proposed or enacted any steps to reduce the risk in any of the 23 activities. In most cases, even when the risk was rated as high, the managers took no steps to reduce risk, suggesting a laissez-faire attitude which I'll mention later. Closure or designation of areas was the step most often implemented to reduce risk. This makes sense, for the risks were believed to stem from Terrain Hazards; it would follow that to reduce risk you get at the perceived cause, and close certain dangerous areas or limit use to safer ones.

We believed that many managers would view high-risk activities as inappropriate and difficult to manage. Activities such as hang gliding may be viewed with skepticism, or may create new management problems. Table 1 reveals that the list of activities rated as inappropriate was indeed dominated by perceived high-risk activities, and by motorized forms of recreation as well. It seems possible that the managers, and many other people as well, have not seriously considered risk recreation, and especially not hang gliding and skydiving. Their ratings of these activities as inappropriate may reflect a basic bias against such "bizarre" forms of recreation. If so, risk recreationists may have to legitimize their sports to the land managers.

Table 1 also shows that motorized forms of recreation were rated as the most difficult to manage, along with hunting, which had the highest mean use level of all activities. The specific management problems most often encountered included enforcement, resource damage, and lack of control. Factors other than perceived risk probably play a greater role in judgments of management difficulty, although hang gliding and skydiving, once again, were rated as relatively difficult to manage.

Finally, observation of Table 1 immediately reveals the low use levels of many high-risk activities. It should be pointed out that some mean use levels are more accurate than others. For example, a region containing a downhill ski area will experience a very high use level, while a region containing none, obviously, will have a use level of zero. But currently low use levels suggest that if special problems accompany high-risk sports, they may not have yet appeared. This was supported by the managers' ratings of potential recreation management problems; managing risk recreation was rated tenth out of eleven.

We now thought it was time to see how the risk, appropriateness, management difficulty, and use level variables interacted across the 23 recreation activities. The resulting typology, shown in Table 5, sheds a bit more light on the value of the perceived-risk variable, and contains some implications for recreation management practices. The table also makes a good deal of intuitive sense. We have, for example, said that perceptions of risk may be related to ratings of management difficulty or appropriateness for a given activity. We now find that none of the activities rated as highly risky were rated as appropriate and easily manageable--regardless of use level.

Table 5 also shows that water skiing, rock climbing, skydiving, hang gliding and caving were all rated as high-risk, difficult to manage, and inappropriate. All, however, currently exhibit low use levels. If participation in these activities increases, as it undoubtedly will, monumental problems and conflicts may result. Managers would be well-advised to keep tabs on use levels of these activities.

Finally, the managers offered their views on emergency medical treatment, search and rescue, and evacuation, all of which are associated with high-risk activities. While 44 percent of the managers believed that the recreationist

should be responsible for these operations, a full 77 percent felt that the recreationist should at least pay for these actions, if needed. The managers' accompanying comments contain quite a range of opinions, bringing out the multiplicity and complexity of issues related to risk recreation.

Some managers, as we have suggested, adopted a laissez-faire policy towards risk-takers:

The individual must bear his own responsibility and proceed at his own risk. Society picks up too much of the tab already!

Recreationists tend to depend on the agency whenever conditions are unfavorable when the recreationists know the agency will pay for evacuation. People with this dependence enter the backcountry with less mental, physical and material preparation.

If they cannot recognize dangers, we shouldn't have to bail them out with taxpayers' dollars.

They come at their own risk...

Some managers said it depends on the situation:

To a growing number, the risk is part of the experience. Only when the agency and its manmade facilities are at fault should the agency pay.

If the search and rescue mission is necessary due to negligence on the part of the recreationist, he or she should pay. If it is an act of God situation, it is appropriate for the agency to bear the cost.

Another group of managers felt somewhat responsible for recreation participants, even if they were taking chances:

Once there is an emergency, all public agencies have a responsibility to assist in whatever capacity possible. It is not necessarily proper, however, to maintain rescue teams just for these contingencies.

The taxpayers pay for our equipment and wages. We should be available to help them in an emergency.

An issue of widespread concern is voiced by another manager:

Not only should the recreationist pay for his own removal, but some thoughts should be given to the people who often have to risk their own lives to effect a rescue. Users that cause that type of situation must be controlled. There is something wrong when a sensible person has to risk his life to save a person who ignored normal caution or took exceptional risks.

Conclusions

Land managers' judgments of the risk inherent in recreation activities appears to be one of several variables predicting their perceptions of and reactions to recreation management problems. The findings reveal, however, that such management responses may not be inferred from perceived risk alone.

Further research could explore why some managers took steps to reduce the risk, what effects the steps had in reducing accident rates, and how recreationists viewed restrictions on their behavior. It would be interesting to correlate the managers' perceptions of risk with those of the recreation participants, and also with objective measures of risk. Finally, study of areas where use levels in high-risk sports are already high may better-prepare managers to face use level rises on their lands in the Northern Rockies.

Professionals in another field, medicine, are also encountering new problems posed by participation in high-risk activities. Eiseman (1975) stated:

Physicians are going to see an increasing number of injuries from hang gliding, and we might as well learn about this sport so that we can cooperate in minimizing the risk in what inevitably is a high-risk leisure activity.

His goal seems remarkably similar to that of the managers who took steps to reduce participant risk. An unlikely coalition, land managers and M.D.s, but this points out the value and necessity of an interdisciplinary approach to the study of risk recreation. Professionals in a number of fields could pool their experience, knowledge, and methodologies to understand the growing interest in and outcomes of participation in risk recreation activities.

In the next phase of our research, we will study risk recreation from the participants' standpoint. What is risk recreation--is this a meaningful classification? Why are some people attracted to risky recreational pursuits,

while others avoid them? What needs are satisfied through risk recreation that perhaps cannot be satisfied in work settings or tamer forms of recreation? Can risk-taking be measured? What are the desired outcomes of risk recreation participation? What is the role of the natural environment? And why do some people abandon their participation in high-risk recreation activities, while others become, as one climber has put it, "adrenalin junkies"? In answering these and a myriad of related questions, we hope to work towards development of a conceptual model of risk recreation, and spur further research on this fascinating arena of human behavior.

TABLE I. Manager Ratings of Selected Recreation Activities

Activity	Risk ¹	Appropriateness ²	Mgmt. Difficulty ³	Use Level ⁴
Hang gliding	65	69	24	37
Skydiving	54	75	24	4
Rock climbing	50	37	14	214
Kayaking	43	43	13	146
Ski mountaineering	43	30	17	169
Caving	33	50	20	104
Canoeing	31	35	11	489
Snowmobiling	28	10	38	6708
Dirt biking	27	46	69	2267
Water skiing	26	52	25	324
Downhill skiing	24	45	14	10818
Winter camping	20	17	11	242
Scuba diving	19	62	19	14
Rafting	17	38	16	1177
Cross-country skiing	14	9	14	1601
Swimming	13	24	13	1809
Off-road driving	13	50	75	3739
Motorboating	13	40	19	2294
Bicycling	10	44	4	435
Hunting	7	4	33	28028
Horseback riding	6	7	11	3416
Backpacking	5	10	13	8594
Fishing	0	4	13	25485

¹Percent rating risk as high or very high

²Percent rating appropriateness as low or very low

³Percent rating management difficulty as high or very high

⁴Reported use level in visitor days from 9/77 to 9/78

TABLE II Four-Variable Typology of Selected Recreation Activities

Risk	Inappropriateness	Mgmt. Difficulty	Use Level	Activities in Category
High	High	High	High	Dirt biking
High	High	High	Low	Water skiing, climbing, hang gliding caving, skydiving
High	High	Low	Low	Canoeing, kayaking
High	High	Low	High	Downhill skiing
High	Low	High	High	Snowmobiling
High	Low	High	Low	Ski mountaineering
High	Low	Low	High	(None)
High	Low	Low	Low	(None)
Low	Low	Low	Low	Winter camping
Low	Low	Low	High	Backpacking, horseback riding, swimming, fishing, cross-country skiing
Low	Low	High	High	Hunting
Low	Low	High	Low	(None)
Low	High	Low	Low	Bicycling
Low	High	Low	High	(None)
Low	High	High	Low	Scuba diving
Low	High	High	High	Off-road driving, motorboating, rafting

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